

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] One embodiment of a frozen filled waffle according to the present invention is generally shown at **10** in **FIG. 1**. In this embodiment, the waffle **10** is shown as a freezer stable, ready to toast batter-based filled waffle having a round perimeter. **FIG. 2** shows an alternative embodiment of the waffle **10** as having a square perimeter. Other polygonal shapes of the perimeter may also be used including rectangular. The waffle **10** can be removed from the freezer and heated in a toaster for consumption. The waffle **10** includes an outer casing material **12** formed from a batter having a moisture content of from about 30 to 65% by weight. A filling material **14** having a moisture content of from about 5 to 40% by weight is disposed inside the outer casing material **12**. In all embodiments, the moisture content of the filling material **14** is always lower than that of the outer casing material **12**. The waffle **10** includes the usually configuration of webbing **11**, the thinnest portions of the waffle, produced by a waffle iron. The aforementioned water content of the waffle **10** is desirable because the consumer perceives the moisture as part of the initial flavor and as part of a pleasing mouth texture.

[0015] The filled waffle **10** of the present invention provides the ability to include a high moisture content in the casing material **12** and filling material **14** without adversely affecting the taste and texture due to water migration between the two materials. To manage the migration of water between the casing material **12** and the filling material **14** during cooking and storage, the casing material **12** is formulated to have a higher water activity level than the filling material **14**. Preferably, the water activity level for the filling material **14** ranges from about 0.70 to 0.95, especially when no antimicrobial steps or treatments are used in the formulation. More preferably, the water activity of the filling material **14** ranges from about 0.80 to 0.90. The water activity level of the outer casing material **12** will range from about 0.90 and 0.99. The filling material **14** acts as a moisture sink when formulated to have a water activity less than that of the casing material **12**. Therefore, free water in the casing material **12** will migrate to the filling material **14**. This reduces the potential for water migration from the filling material **14** to the casing material **12**, which would result in discoloration and moistening of the casing material **12** and a loss of the quantity and quality of the filling **14**.

[0016] Antimicrobial steps include, for example, cold temperature storage, heat sterilization, aseptic packaging, chemical preservatives, or combinations of these steps. In another embodiment, one or more of these antimicrobial steps are utilized and this allows the water activity level of the casing material **12** to range from 0.92 to 0.99 and the water activity level of the filling material **14** to range from 0.6 to 0.95.

[0017] The casing material **12** must have suitable structural characteristics to resist breaking and/or distorting during manufacturing, packaging, shipping, and final toasting during consumer use. The casing material **12** must support the filling material **14** as the filled waffle **10** sits on its edge when it is heated in the toaster. The casing material **12** must also be strong enough to support itself while being held at an edge during extraction from the toaster.

[0018] When preparing the filled waffle **10**, a first layer **25** of outer casing material **12** is formed by pouring the batter

onto a cooking surface. The first layer **25** rapidly begins to cook. The filling material **14** is then deposited centrally onto the first layer **25** and a second layer **26** of casing material **12** batter is poured over the filling material **14** concealing the filling material **14** between the first and second layers **25, 26**. It is important that the filling material **14** not be placed too close to the edges of the layers **25** and **26** or the filling material **14** could leak out on to the baking surface causing burning and production difficulties. A typical waffle has webbing **11** with a thickness of from 0.06 to 0.18 inches. To accommodate the filling material **14**, it is necessary to increase the thickness of the webbing **11** in the region of the filling material **14** to about from 0.1 to 0.3 inches. The filled waffle **10** is generally cooked at a temperature ranging from 120° C. to 250° C. The cooking cycle generally ranges from 50 seconds to 240 seconds depending upon the chosen cooking temperature. The waffle grid formed into the first and second layers **25, 26** by the webbing **11** shown in **FIGS. 1 and 2** is important for several reasons. First, the grid adds strength to the structure so it will sit upright in a toaster. Second, the grid allows for good penetration of heat to the filling material **14**, especially in the places where the waffle **10** is the thinnest.

[0019] The on edge height of the waffle **10** according to the present invention must exceed 9.0 cm to enable the consumer to grab an edge of the waffle **10** for extraction from a typical toaster. However, the height of the waffle **10** must not exceed 15.0 cm or it will be too large to fully fit into most upright toasters. The thickness of the waffle **10** can range from about 1.2 cm to roughly 2.0 cm. If the weight of the waffle **10** significantly exceeds 60 grams the spring mechanism on a standard upright consumer toaster will not be able to eject the waffle **10** resulting in a charred or burned waffle **10**. Structural integrity of the casing material **12** is derived from the multiple layers and the dimensional design, such as, for example, the waffle ribbing. However, other methods well known in the art of toaster products can be utilized to derive structural integrity.

[0020] The filling material **14** may comprise any of a large variety of fillings and flavors. In a first category the filling material may be a sweet filling comprising a fruit based filling, a cream cheese based filling, a sweet flavored filling, or mixtures of these. The fruit based filling may be any fruit such as apple, strawberry, blueberry, grape, apricot, etc. The fruit based filling can also be a jelly or jam type material in combination with peanut butter. Alternatively, the filling material **14** may be peanut butter alone. Any variety of plain or flavored cream cheese may be used, especially fruit and cream cheese mixtures. The filling material **14** may also comprise a sweet flavored filling such as, for example, honey, chocolate flavor, vanilla, vanilla cream, butter, maple, cinnamon, brown sugar, mixtures of these and any other sweet flavored filling. These flavors may be used in combination with the other sweet flavors above. In a second category the filling material **14** can comprise a savory type filling such as a cheese, tomato, tomato and herbs, tomato sauce, vegetables, cheese and vegetable combinations, bacon, ham, pork sausage, beef sausage, meat analogs, and mixtures of these.

[0021] Shown in Table 1 is a typical formulation range for the components of the filling material **14**, reported as percent by weight based on the total weight of the filling material **14**,